



OPPT Chemical Fact Sheets

Phthalic Anhydride Fact Sheet (CAS No. 85-44-9)



Chemicals can be released to the environment as a result of their manufacture, processing, and use. EPA has developed information summaries on selected chemicals to describe how you might be exposed to these chemicals, how exposure to them might affect you and the environment, what happens to them in the environment, who regulates them, and whom to contact for additional information. EPA is committed to reducing environmental releases of chemicals through source reduction and other practices that reduce creation of pollutants.

WHAT IS PHTHALIC ANHYDRIDE, HOW IS IT USED, AND HOW MIGHT I BE EXPOSED?

Phthalic anhydride is a solid that exists as white flakes. It has a musty odor. It occurs naturally, reportedly being present in baked potatoes. Phthalic anhydride is produced in large amounts (990 million pounds in 1993) by five companies in the United States. Though U.S. demand for phthalic anhydride has declined in recent years, it is likely to increase by 2 to 3 percent per year in the future. The largest users of phthalic anhydride are companies that make phthalate plasticizers, unsaturated polyesters, and alkyd resins. Companies also use phthalic anhydride to make halogenated anhydrides and polyester polyalcohols; pigments, dyes, perfumes, and drugs; and insect repellents. Companies add phthalic anhydride to paints and rubber products. They also use it to tan and cure leather products.

Exposure to phthalic anhydride can occur in the workplace or in the environment following releases to air, water, land, or groundwater. Phthalic anhydride enters the body when people breathe air or consume water or food contaminated with phthalic anhydride. It can also be absorbed through skin contact. It does not remain in the body due to its breakdown and removal.

WHAT HAPPENS TO PHTHALIC ANHYDRIDE IN THE ENVIRONMENT?

Phthalic anhydride dissolves when mixed with water. It reacts in water and in moist soil to form phthalic acid. Most releases of phthalic anhydride to the environment are to air. Once in air, it breaks down to other chemicals. Microorganisms living in water and in soil can also break down phthalic anhydride. Because of its reactivity in water, phthalic anhydride that makes its way into the ground is likely to break down before it can enter groundwater. Plants and animals are not likely to store phthalic anhydride.

HOW DOES PHTHALIC ANHYDRIDE AFFECT HUMAN HEALTH AND THE ENVIRONMENT?

Effects of phthalic anhydride on human health and the environment depend on how much phthalic anhydride is present and the length and frequency of exposure. Effects also depend on the health of a person or the condition of the environment when exposure occurs.

Workers repeatedly exposed to large amounts of phthalic anhydride have experienced irritation of the eyes, the skin, and the respiratory system. Phthalic anhydride can also cause lung sensitization in humans and in animals. These effects are not likely to occur at levels of phthalic anhydride that are normally found in the environment.

Human health effects associated with breathing or otherwise consuming small amounts of phthalic anhydride are not known. Workers repeatedly exposed to phthalic anhydride have developed allergic reactions, such as asthma and bronchitis. Laboratory studies show that repeated exposure to large amounts of phthalic anhydride in food causes adverse effects in the lungs, the kidneys, the adrenal gland, and the thalamus of animals. Limited evidence shows that phthalic anhydride may also cause changes in cells important to the reproductive system of animals. Whether these changes affect the ability of animals to reproduce is not known.

Phthalic anhydride is not likely to cause environmental harm at levels normally found in the environment.

WHAT EPA OFFICES OR OTHER FEDERAL AGENCIES OR OTHER GROUPS CAN I CONTACT FOR ADDITIONAL INFORMATION ON PHTHALIC ANHYDRIDE?

EPA OFFICE	LAW	PHONE NUMBER
Pollution Prevention & Toxics	Emergency Planning and Community Right-to-Know Act (EPCRA) (§ 313/ Toxics Release Inventory data)	(202) 260-1531
	Toxic Substances Control Act (TSCA) (§4 and §12b)	(202) 554-1404
Air	Clean Air Act	(919) 541-0888
Solid Waste & Emergency Response	Resource Conservation and Recovery Act (RCRA)	(415) 744-2074
	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)	(800) 535-0202

For general information on reducing or eliminating industrial pollutants through technology transfer, education, and public awareness, contact the Pollution Prevention Information Clearinghouse, (202) 260-1023.

OTHER FEDERAL AGENCY/DEPARTMENT OR GROUP	PHONE NUMBER
American Conference of Governmental Industrial Hygienists	(513) 742-2020
Consumer Product Safety Commission	(301) 504-0994
Food & Drug Administration	(301) 443-3170
National Institute for Occupational Safety & Health	(800) 356-4674
National Institute of Environmental Health Sciences (EnviroHealth Clearinghouse)	(800) 643-4794
Occupational Safety & Health Administration (Check local phone book for phone number under Department of Labor)	

The Support Document for this and other OPPT Chemical Fact Sheets can be found on the Internet at:
<http://www.epa.gov/chemfact>